Volunteer Lake Assessment Program Individual Lake Reports

HARRISVILLE POND, HARRISVILLE, NH

MORPHOMETRIC DATA

Watershed Area (Ac.):	8,064	**Max. Depth (m):**	12.5	**Flushing Rate (yr^{-1}):**	8.4
Surface Area (Ac.):	120	**Mean Depth (m):**	4.7	**P Retention Coef:**	0.39
Shore Length (m):	5,300	**Volume (m^3):**	2,264,500	**Elevation (ft):**	1318

TROPHIC CLASSIFICATION

Year	Trophic class
1987	EUTROPHIC
2006	MESOTROPHIC

KNOWN EXOTIC SPECIES

The Waterbody Report Card tables are generated from the 2012 305(b) report on the status of N.H. waters, and are based on data collected from 2001-2011.

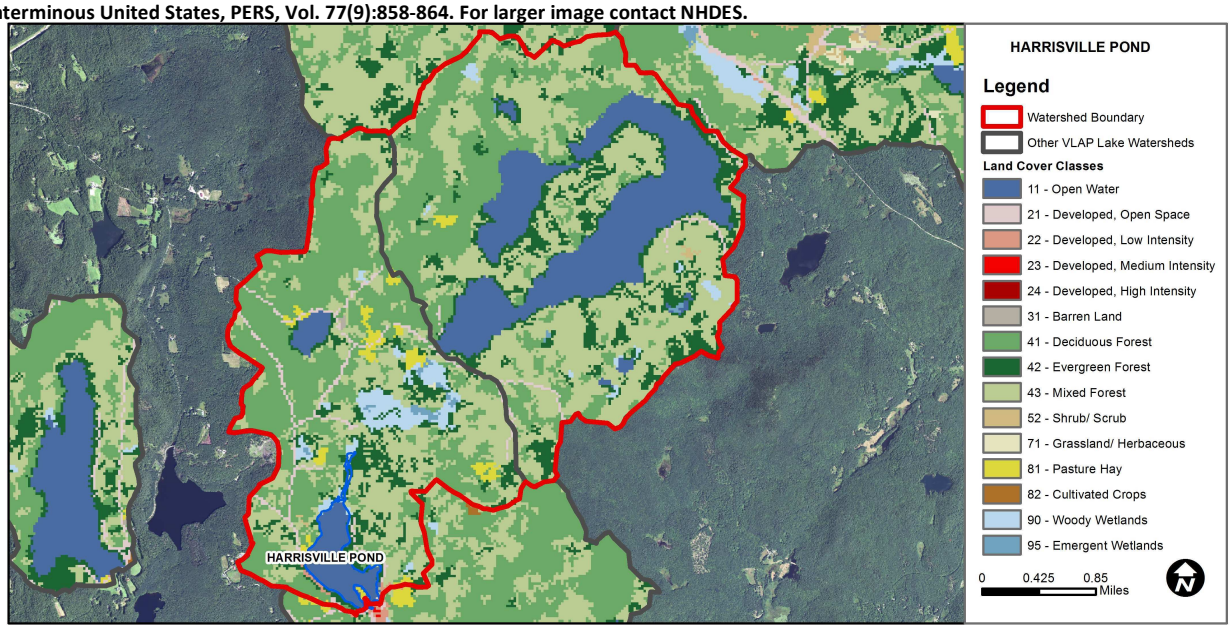
Designated Use	Parameter	Category	Comments
Aquatic Life	Phosphorus (Total)	Good	>/=5 samples and median is < threshold but > 1/2 threshold value.
	pH	Bad	>10%, with a minimum of 2, samples exceed criteria, with 1 or more by a large margin.
	D.O. (mg/L)	Cautionary	< 10 samples and 1 exceedance of criteria. More data needed.
	D.O. (% sat)	Slightly Bad	>10% of samples exceed criteria by a small margin (minimum of 2 exceedances).
	Chlorophyll-a	Good	>/=5 samples and median is < threshold but > 1/2 threshold value.
Primary Contact Recreation	E. coli	Very Good	All bacteria samples <75% of geometric mean criteria, but not enough to calculate geometric mean. Or, all bacteria samples are < single sample criteria and calculated Geometric means are less than geometric mean criteria.
	Chlorophyll-a	Very Good	At least 10 samples with 0 exceedances of criteria.

BEACH PRIMARY CONTACT ASSESSMENT STATUS

HARRISVILLE LAKE - SUNSET TOWN BEACH	E. coli	Cautionary	One exceedance of single sample criteria but not enough data to calcuate geometric mean. More data needed.

WATERSHED LAND USE SUMMARY

Fry, J., Xian, G., Jin, S., Dewitz, J., Homer, C., Yang, L., Barnes, C., Herold, N., and Wickham, J., 2011. Completion of the 2006 National Land Cover Database for the Conterminous United States, PERS, Vol. 77(9):858-864. For larger image contact NHDES.

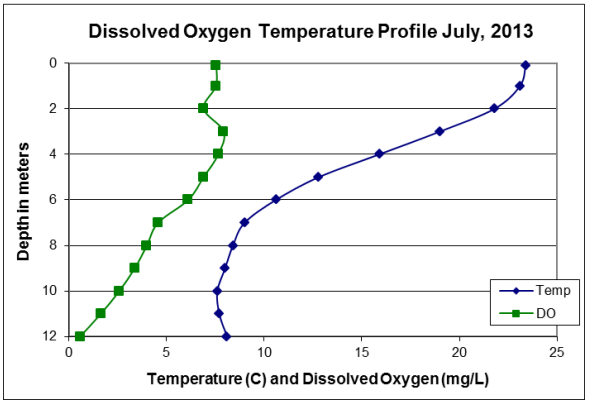


Land Cover Category	% Cover	Land Cover Category	% Cover	Land Cover Category	% Cover
Open Water	16.2	Barren Land	0.04	Grassland/Herbaceous	0.02
Developed-Open Space	1.8	Deciduous Forest	30.78	Pasture Hay	1.29
Developed-Low Intensity	0.13	Evergreen Forest	11.7	Cultivated Crops	0
Developed-Medium Intensity	0	Mixed Forest	35.33	Woody Wetlands	2.34
Developed-High Intensity	0	Shrub-Scrub	0.08	Emergent Wetlands	0.35

VOLUNTEER LAKE ASSESSMENT PROGRAM INDIVIDUAL LAKE REPORTS
HARRISVILLE POND, HARRISVILLE, NH
2013 DATA SUMMARY

OBSERVATIONS AND RECOMMENDATIONS (*Refer to Table 1 and Historical Deep Spot Data Graphics)*

- **CHLOROPHYLL-A:** Chlorophyll levels were relatively low and slightly less than the state median. Visual inspection of historical data indicates chlorophyll levels vary moderately from year to year.
- **CONDUCTIVITY/CHLORIDE:** Conductivity levels were low and much less than the state median at all stations except for Cemetary Inlet. Visual inspection of historical data indicates epilimnetic conductivity may be decreasing slightly.
- **TOTAL PHOSPHORUS:** Deep spot phosphorus levels were low and much less than the state median. Visual inspection of historical data indicates slightly variable epilimnetic (upper water layer) phosphorus from year to year. Tributary phosphorus levels were also very low which is a great sign considering the significant storm events prior to sampling.
- **TRANSPARENCY:** Transparency data were not collected in 2013; we apologize for the inconvenience.
- **TURBIDITY:** Deep spot and tributary turbidity levels were low which was a great sign considering the significant storm events prior to sampling.
- **PH:** Deep spot and tributary pH levels were lower than desirable range 6.5 – 8.0 units and potentially critical to aquatic life. Visual inspection of historical data indicates a relatively stable epilimnetic pH.
- **DISSOLVED OXYGEN:** Dissolved oxygen levels decreased steadily in the hypolimnion (lower water layer) due to microbial activity in bottom sediments. If dissolved oxygen levels deplete below 1.0 mg/L, phosphorus that is typically bound in the sediments may be released into the hypolimnion.
- **RECOMMENDED ACTIONS:** Increase monitoring frequency to three times per summer, typically June, July and August, to better assess seasonal and historical trends and decrease data variability. Conduct chloride monitoring in Cemetary Inlet to assess whether chloride is attributing to the elevated conductivity.



NH Water Quality Standards: Numeric criteria for specific parameters. Results exceeding criteria are considered a water quality violation.
Chloride: < 230 mg/L (chronic)
E. coli: > 88 cts/100 mL – public beach
E. coli: > 406 cts/100 mL – surface waters
Turbidity: > 10 NTU above natural level
pH: 6.5-8.0 (unless naturally occurring)

NH Median Values: Median values for specific parameters generated from historic lake monitoring data.
Alkalinity: 4.9 mg/L
Chlorophyll-a: 4.58 mg/m^3
Conductivity: 40.0 uS/cm
Chloride: 4 mg/L
Total Phosphorus: 12 ug/L
Transparency: 3.2 m
pH: 6.6

Table 1. 2013 Average Water Quality Data for HARRISVILLE POND

Station	Alk. mg/l	Chlor-a ug/l	Cond. uS/cm	Total P ug/l	Turb. ntu	pH
Cemetary Inlet			95.0	7	0.61	6.15
Epilimnion	1.00	4.09	19.5	5	0.60	5.90
Metalimnion			24.0	3	0.42	5.68
Hypolimnion			27.0	8	1.19	5.40
Jane Dunn Inlet			19.0	3	0.15	4.98
Library Outlet			19.0	5	0.51	6.10
Nelson Pond Inlet			27.0	9	0.27	5.79

HISTORICAL WATER QUALITY TREND ANALYSIS

Parameter	Trend	Explanation	Parameter	Trend	Explanation
pH	N/A	Ten consecutive years of data necessary.	Chlorophyll-a	N/A	Ten consecutive years of data necessary.
Conductivity	N/A	Ten consecutive years of data necessary.	Transparency	N/A	Ten consecutive years of data necessary.
			Phosphorus (epilimnion)	N/A	Ten consecutive years of data necessary.